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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 853,870	05 11 2001	Murali Chaparala	ONX-117B	7261

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EXAMINER

ROJAS, OMAR R

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 03 31 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/853,870

Applicant(s)

CHAPARALA, MURALI

Examiner

Omar Rojas

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 24-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☒ Claim(s) 12-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4&6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION***Election/Restrictions***

1. Applicant's election with traverse of claims 1-5, 7, 9, 10, 11-18, and 20 in Paper No. 7 is acknowledged. The traversal is on the ground(s) that it is improper since the Examiner has not given reasons for his holding of distinctness. In response, the Examiner withdraws the previous restriction requirement for all the previously restricted claims except for claims 24-26 which read on Fig. 6. Claims 24-26 deal with a temperature measuring means and means for compensating for a variation due to temperature. This subject matter would require a search in class 702, subclass 130. Such an area of search would not be required for the subject matter of claims 1-23. Furthermore, it is clear that the subject matter of claims 24-26 and the subject matter of claim 1 are related as combination and subcombination, respectively. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the apparatus of claim 1 may function properly without the temperature measuring means recited by claims 24-26. The subcombination has separate utility such as in optical switches.

Thus the requirement is still deemed proper for claims 24-26 and is therefore made FINAL.

Art Unit: 2874

2. Claims 24-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 7.

Information Disclosure Statement

3. The prior art documents submitted by applicant in the Information Disclosure Statement(s) filed on August 21, 2001 and February 22, 2003 have all been considered and made of record (note the attached copy of form(s) PTO-1449).

Drawings

4. This application appears to lack formal drawings. See Fig. 6, in particular. The informal drawings filed in this application are acceptable for examination purposes only. When the application is allowed, applicant will be required to submit new formal drawings.

Specification

5. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

6. Claim 7 is objected to because of the following informalities: Claim 7 refers to claim 5 as a "method" claim, rather than an apparatus claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 2874

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 12-23 recite, or incorporate by claim dependency, the limitation "a magnetic structure" as found in line 1 of claim 12. It is not clear whether or not the "magnetic structure" refers to the magnetic sensor recited in claim 1 or a different structure.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,629,918 to Ho et al. (hereinafter "Ho").

Regarding claims 1-5, See Ho at Fig. 1, Fig. 8i, col. 4, ll. 10-55, and col. 10, ll. 11-20.

Regarding claims 6-8, See Ho at Figs. 8h-8i.

Regarding claim 11, it is inherent in Ho that the magnetic sensor may respond to separate magnetic fields from that used to actuate the optical element.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ho as applied to claims 1-8 above, and further in view of MEMS Magnetic Sensor in Standard CMOS, Science Closure and Enabling Technologies for Constellation Class Missions, pp. 99-102, UC Berkeley, Calif., 1998 by Eyre et al. ("Eyre").**

Regarding claims 9-10, the examiner incorporates the previous remarks concerning claims 1-8. Thus, Ho differs from claims 9-10 in that Ho does not expressly teach coupling the magnetic coils on the movable flap and the fixed portion using a Wheatstone bridge circuit. Eyre, on the other hand, teaches using a Wheatstone bridge circuit to transduce magnetic field fluxes to electrical voltage signals. Id. Eyre is analogous art because it also deals with micro electromechanical systems (MEMS). The ordinary skilled artisan would have found it desirable to use a Wheatstone bridge circuit in Ho because such a circuit is commonly used in magnetic sensing applications in general. Magnetic sensing would obviously be a desirable application for the invention of Ho as well. Therefore, using available techniques and routine modification, it would have

Art Unit: 2874

been obvious to one of ordinary skill at the time of the claimed invention to obtain the invention specified by claims 9-10.

Allowable Subject Matter

11. Claims 12-23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: Claims 12-23 attempt to patentably define what appears to be a novel apparatus in view of the prior art. Specifically, the prior art does not disclose or suggest, alone or in combinations, disposing a magnetic structure along with a magnetic sensor on a micro-machined optical element, wherein the micro-machined optical element is actuated by an actuating magnetic field and the magnetic sensor senses a separate magnetic field created by the magnetic structure. Such an apparatus is shown in Fig. 2A, for example.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 6,356,741 to Bilotti et al. is evidence that Wheatstone bridge circuits are commonly used for magnetic sensing applications. U.S. Patent No. 6,528,887 shows a MEMS device in Fig. 9A having a "top chip". "A Magnetically Actuated MEMS scanning mirror" by Miller et al., SPIE, Vol. 2687, pp. 47-52, discloses an apparatus comprising a micro-machined optical element, having a magnetic structure, disposed thereto and snake-like springs.

Art Unit: 2874

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Omar Rojas whose telephone number is (703) 305-8528 and whose e-mail address is *omar.rojas@uspto.gov*. The examiner can normally be reached on Monday-Friday (7:00AM-3:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hemang Sanghavi, can be reached on (703) 305-3484. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722 for regular communications. The examiner's personal work fax number is (703) 746-4751.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Omar Rojas
Patent Examiner
Art Unit 2874

or
March 19, 2003


HEMANG SANGHAVI
PRIMARY EXAMINER